

INTRODUCTION

INTRODUCTION

Animal organisms require, for the proper operation of all of their physiological functions, a regular intake of some forty different dietary compounds. If only one of these is missing or its supply is inadequate, deficiency symptoms appear which, if prolonged, can be fatal.

Vitamins as organic compounds and active substances are very essential in diet and therefore are indispensable for life. They are mediators of synthetic and degradative processes without serving as building substances themselves. To-day, 13 vitamins are known, and the daily requirements for each vitamin for an individual is very small, usually measured in micrograms or milligrams as micronutrients. However, in this respect they differ from the "macro" nutrients i.e. proteins, fats, carbohydrates, amino acids and mineral salts since these major nutrients are required in at least 1000 times larger amounts than the vitamins.

Vitamin requirements are also subject to continuous variation between certain limits. It follows that only approximate quantitative estimates of vitamin requirements can be expressed. It is of course possible to determine minimum amounts which must be supplied daily to avoid severe deficiency diseases. But observation made on domestic birds show that the vitamin

requirements for maximum production are many times greater than such minimum amounts. However, to cover vitamin requirements fully it is therefore necessary to add a supplement to the diet so that even in unfavourable cases adequate supplies are assured.

Contrary to other active substances, such as the hormones, vitamins can be absorbed in large quantities without ill-effects. Only when the supply exceeds a certain upper limit (more than a 100 times the requirement for most vitamins) and, for a prolonged period, can cause symptoms of so-called "hyper vitaminoses" develop.

The deficiency of vitamin A generally causes a lowered resistance to infections, lesions of the skin and mucosa of different origins, disorders of dark-adaptation and liver disorders with diminished storage capability of vitamin A.

On the other hand, the deficiency of vitamin E has physiological function indications as for example, in cardiac, vascular and muscular disorders, and the risk of miscarriage. Also, inadequate vitamin E supply results in disorders of fat absorption specially when using diets with high levels of unsaturated fatty acids.

Many workers presented evidence of the interrelationship between vitamin A and α -tocopherol acetate since the former has a detrimental influence on vitamin E content of animal tissue.

In this study the different effects of feeding chicks on diets containing different combined levels of vitamin A and E were investigated. Plasma vitamin A, E, calcium, phosphorus, lipid composition, liver function and growth of Hubbard broiler chicks were measured as criteria of such feeding. Also, the effect of dietary vitamin E levels on meat stability of broiler chicks along with the effect of storage on stability of vitamin A and E in mixed feeds and premixes were studied.